# CS 255 Business Requirements Document Template

Complete this template by replacing the bracketed text with the relevant information.

This template lays out all the different sections that you need to complete for Project One. Each section has guiding questions to prompt your thinking. These questions are meant to guide your initial responses to each area. You are encouraged to go beyond these questions using what you have learned in your readings. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead, the goal is to complete each section based on your client’s needs.

**Tip:** You should respond in a bulleted list for each section. This will make your thoughts easier to reference when you move into the design phase for Project Two. One starter bullet has been provided for you in each section, but you will need to add more.

## System Components and Design

### Purpose

* DriverPass wishes to train customers in driving.
* Many people fail their driving tests, so DriverPass wants to create materials to help them succeed.
* Some materials that will be offered are online classes and practice tests.
* In-person driver training will also be offered, if desired.

### System Background

* The owner of DriverPass, Liam, needs to have access to data both online and offline, meaning he needs to be able to download reports and other information that he can work on later.
* This data needs to be accessible online from any device, including mobile devices.
* There are employees at DriverPass, so these employees need different access rights and permissions based on their role at the company.
* The IT officer, Ian, needs elevated privelages and access over all accounts for the purpose of resetting passwords and making changes to an account’s permissions and roles, including blocking access for a specific user.
* User changes need to be tracked, so that information such as who made a reservation, who canceled a reservation, and who last modified a reservation is readily accessible.
* This information needs to be able to be printed.
* Reservations are made by customers when they want to schedule an in-person lesson.
* Lessons are two hours in length, and information from the customer needs to be provided, such as the desired date and time of the lesson.
* Reservations should be made online using the user’s account.
* Reservations can also be made via phone or a visit to the company’s office.
* Reservations also need to provide information about the driver who will teach the customer, and be able to track this.
* Reservations must also include the car a user is scheduled to drive.
* Appointments can be accessed online via a customer’s account.
* The customer should be able to modify these appointments when necessary, including cancelling the appointment.
* Customers can choose one of three packages when making a reservation or appointment.
* Package one includes six hours total in a car with a trainer.
* Package two includes eight hours total in a car with a trainer, as well as an in-person lesson explaining the rules and polices of the DMV.
* Package three includes twelve hours total in a car with a trainer, an in-person lesson explaining the rules and policies of the DMV, as well as access to all online classes and materials, including practice tests.
* Since each lesson is two hours in length, each package needs to spread these two hours out across all hours included in the package.
* The addition and removal of new packages should be considered for the future, but is not necessary to start the project and complete it.
* The disabling of a package should be considered as well for a future release.
* Registration involves a phone call from a customer, and the customer provide s DriverPass with their information.
* Customer information required for registration includes first name, last name, address, phone number, state, credit card number, expiration date, and security code.
* The pickup location for a customer should also be provided to DriverPass for in-person lessons, as well as a drop-off location, which is the same as the pickup location.
* Because customers will have their own accounts, they need to be able to reset their passwords automatically if they are forgotten.
* Constant communication with the DMV is necessary, as DriverPass needs to update their materials and policies based on this.
* When the DMV updates their policies, DriverPass needs to receive a notification of this so that they can make the appropriate changes and decisions.

### Objectives and Goals

*What should this system be able to do when it is completed? What measurable tasks need to be included in the system design to achieve this?*

* When completed, the system should be able to effectively allow the customer to schedule appointments, take online practice tests, and review online course materials.
* The system should also allow the owner of the company and the information technology officer to access the system and modify it if desired.
* Some measurable tasks are as follows:
  + User registration:
    - Customer’s first and last names
    - Customer’s address
    - Customer’s phone number
    - Customer’s state
    - Customer’s credit card information (number, expiration date, security code)
  + Appointments:
    - Two hours in length
    - Track which driver will be with the customer
    - Track the car the customer will be using
    - Track the time of the appointment
    - Track the pickup and drop-off locations of the customer
    - The user can cancel an appointment
    - The user can reschedule an appointment
  + User accounts:
    - The user can automatically reset their password if forgotten
    - The user can track their current lessons
    - The user can see the current progress of their lessons (pass, fail, in progress, not taken)
    - The user can access online course materials if their package includes them
    - The user can take online practice tests
    - The user can schedule or modify appointments
  + Administrator priveleges:
    - The information technology officer can reset passwords if necessary
    - The information technology officer can block access to specific accounts

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* The system will be web-based and run in a user’s web browser on the device of their choosing, which means the website will need to be well-optimized in order to run efficiently on a multitude of different devices
* The website will query the necessary data from the databases as requested by the user, so only maintenance updates and general changes by administrators are required

Rationale: The system being web-based allows for far more users to access the website, rather than being limited to an application that works only on certain platforms. The user doesn’t have to download anything, they can simply navigate to the website on the device that is most convenient to them. However, this also means that the website will need to be well-optimized to work in various web browsers and on different devices with varying performance capabilities. Because the website queries the database when it needs certain information, it never really has to be updated unless new content needs to be added to the database manually, or the website itself is being updated by a web developer.

#### Platform Constraints

* The system will be hosted in the cloud and run in a user’s web browser
* Linux will be the operating system used to host the web server and databases
* Databases will be built to store customer data, appointment data, employee data, website content, and a database for logging the history of user account changes and system modifications

Rationale: Because Linux will be the best platform from which to host the website, we will be required to obey whatever contraints Linux puts on us, for example, some packages may not be supported. Databases will need to be created to store information about the customer, website content, employee information, and a log of user account changes and website changes. The client specifically asked for the ability to view changes, so these changes must be stored somewhere. The other databases are simply necessary for a website of this scale.

#### Accuracy and Precision

* Customer accounts will be distinguished by the package they’ve selected (package one, two, or three)
* Administrator accounts will be distinguished from customer accounts via a separate administrator backend on the website, and will be distinguished by their specific role at DriverPass
* When the DMV updates their policies, the system will notify DriverPass administrators in order for them to update the appropriate information

Rationale: Accounts will not be distuinguished by customer vs. administrator per say. Customer accounts are accessed via the public website, and administrator accounts are accessible via the adminstrator backend, which is not available to the public. Customer accounts will be separated by tiers, though, based on which package they have, and roles will be assigned accordingly. Administrators will be separated based on their role at DriverPass, and have the appropriate permissions they need in order to get their job done. Because the DMV may update their policies at any time, DriverPass needs to be made aware of these changes at all times, hence the constant communication with the DMV.

#### Adaptability

* The IT administrator needs access over all customer accounts, including blocking certain users from accessing the system, resetting users’ passwords, and changing user permissions
* Customers will be able to change their information via the website at any time, without hassle
* Administrators will be able to update customer information, as well as their own information and website content via the administrator backend on the website

Rationale: The IT administrator specifically asked for access over accounts in order to update information and reset passwords as necessary. Customers must also be able to change their information at will in order to ensure it is up to date in the system. This is important considering the type of business being conducted.

#### Security

* HTTPS will be used in order to secure the communication between the client and the web server
* Passwords are required to be at least 6 characters long, and include at least one digit 0-9 and one symbol
* Users will have the option to sign up for 2FA via email or phone number, providing an extra layer of security during the login process
* Users will have the ability to reset their passwords if forgotten by receiving an email from the system with a password reset link
* If a user fails to enter the correct 2FA code or password 4 times, access to the user’s account will be temporarily blocked until the customer submits a help ticket or calls to prove their identity
* If any blatant attempts to hack a user’s account are detected, it will also temporarily block access to a user’s account
* Accounts will only be given the minimum number of permissions as possible so as to avoid the amount of damage done by a compromised account (this especially applies to administrator accounts)

Rationale: Using HTTPS is basically a standard these days and provides a tremendous amount of protection. We shouldn’t make the site public without it. Password requirements are great to have, because they decrease the chances that someone can guess your password in some way. All in all, it is a great extra layer of security. 2FA is very common these days as well, and is optional for the customer, but strongly recommended. It is also recommended that a phone number is used instead of email, although 2FA via email is also an option. Failing to input the correct password after a certain number of attempts could potentially mean that someone unauthorized is trying to gain access to the account, so the account should be suspended temporarily (without affecting user data) until the issue is sorted out. Giving a user or administrator account the minimum number of permissions they need to do their job is best, because it limits the amount of damage done if the account becomes compromised, as they won’t have access to things that could potentially harm or even destroy the system.

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### Functional Requirements

*Using the information from the scenario, think about the different functions the system needs to provide. Each of your bullets should start with “The system shall . . .” For example, one functional requirement might be, “The system shall validate user credentials when logging in.”*

* The user shall be presented with the website’s homepage upon navigating to the website
* The user shall login to the website user their secure username and password, and using 2FA if enabled
  + If the user is not registered for an account, the user shall have the ability to register via the website by entering their email address, first name, last name, street address, phone number, state, credit card number, expiration date, security code, as well as a secure password that contains at least 6 alphanumerical characters, one symbol, and one number
* The user shall be presented with their profile, where they have the ability to review tests and notes from their driver, as well as update their own information and schedule an appointment, or submit a help ticket

### User Interface

* The user interface must be responsive in order to look its best on a variety of different screen sizes, as users will be accessing the website from a plethora of different devices
* A customers’s profile page will display test progress, the user’s information, the user’s photo, their driver’s photo, any special needs the customer may have, and notes from their driver
* Test progress will include the name of the test, time taken, and score, and will be labeled either not taken, passed, failed, or in progress
* Driver notes will include the time of the lesson, start hour and end hour, as well as any notes left by the driver for the student to review

### Assumptions

* The user has an internet connection
* The user has a device they can use to access the website
* The user is of legal driving age in their state
* The user has a valid ID

### Limitations

* Limited to the use of HTML, CSS, and JavaScript for front-end development of the website
* The website will not be available if the server host is experiencing issues
* The website is not accessible offline

### Gantt Chart

